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ABSTRACT

This paper discusses implementation of Cooperative Integrated Reading and Composition (CIRC) with bilingual 2nd- through 4th-grade students. The CIRC curriculum is intended to help students in the early grades acquire a variety of reading and literacy skills. The curriculum centers around "treasure hunt" units that last 5 or more days each. These units focus on the reading of a narrative that is presented in two successive segments. Student dyads are required to discuss and answer questions developed for each segment. Questions for the first segment end with a prediction question that asks students to predict what will happen next in the story. Analyses indicate the occurrence of three main functions in the interaction of students in dyads (in which the teacher occasionally participated). These functions include: (1) teachers or students giving assistance to a student; (2) students demonstrating competence in offering answers to a question or solutions to a problem; and (3) students asking for help directly or indirectly. It is concluded that findings could be helpful in increasing understanding of the ways in which cooperative learning works at the level of student interaction. (RH)

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Teaching the Discourse of Cooperation

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Introduction

One of the most prevalent criticisms of whole-group instruction is that it fails to provide students with an adequate opportunity to interact with a teacher and with other students. Cummins (1989) e.g., has discussed the limits of a "transmission" orientation to instruction versus an orientation emphasizing instruction as a reciprocal process involving active social communication leading to students' construction of their own knowledge. Cooperative learning activities are widely believed to embody the latter form of instruction, though their effectiveness over whole-group instruction may be explained in multiple ways (Slavin, 1989).

Effectiveness of cooperative instruction with language minority and culturally diverse students, however, makes certain models accounting for effectiveness more attractive and valuable for design of interventions. In addition, accounts that are sensitive to the linguistic and social resources of students can have important implications for teacher training and for ways of developing students' long term self-identity and educational aspirations. Such accounts are all the more powerful if they can draw on a general theoretical framework for ascertaining the effectiveness of instruction.

This paper discusses an implementation of Cooperative Integrated Reading and Composition (CIRC) with bilingual 2nd through 4th grade students that includes attention to ways in which the discourse of cooperative encounters affords opportunities for students to learn. As part of the overall project, we are attempting to understand ways in which the participating children construct their interaction so that they achieve the immediate goals of an instructional activity requiring them to answer questions and to make a

prediction based on narrative passages they have read. Our approach is based on the instructional theory of "assisted performance" developed by Tharp and Gallimore (1988) and upon discourse analysis interpretation of schema and scripts underlying purposeful social interaction (see e.g., Freedle and Durán, 1979).

Dyadic Question Answering Activity in CIRC

The CIRC curriculum is intended to help students in the early grades acquire a variety of reading and literacy skills. The curriculum centers around "treasure hunt" units each lasting 5 or more days, which are focused on the reading of a narrative presented in two successive segments. Following introduction of key vocabulary terms and exploration of the relevance of terms to a potential story, students are asked to read a story segment silently and then aloud in pairs. Next, student dyads are required to discuss and answer a set of questions developed for each passage segment. Questions for the first segment are ended with a prediction question asking students to predict what will happen next in a story.

Students in dyads are at the same reading level, though it is often advantageous to pair a more capable student with a student who is less effective as a reader. When presented a question, students are expected to discuss actively ways in which a question may be answered. When they have completed this discussion, each student writes his or her answer down on a sheet designed for this purpose. Answers are required to be complete sentences.

Questions are intended to stimulate children's comprehension of a story and not just to assess what they comprehended. Typically, the questions are about story grammar elements such as the identity of the characters, setting, and the activities and motives of story actors, and the outcome of the story.

Figure 1 displays a sample story entitled "A Hike in New York City" read by 4th grade students in our CIRC project. Figure 2 displays the key vocabulary terms taught students before beginning the story and 5 treasure hunt questions and a prediction question accompanying the reading of the first half of the story.

Analyzing Dyadic Interaction

Our goal in analyzing interaction among students in dyads as they answer questions is to explore ways in which the interaction stimulates students' comprehension and comprehension skill development. Presumably, students should be less capable of answering questions on their own than when working in pairs. The different perspectives brought to bear in answering a question by each child should help them evaluate their understanding of what a story actually stated and the suitability of alternative answers to a question.

In conducting analyses of the interaction we have found it informative to code exchanges among students relying on descriptive categories for teaching strategies developed by Tharp and Gallimore (1988). According to Tharp and Gallimore, a teacher or more capable other is actually helping a student learn when he or she actively assists the student in accomplishing a task that the student cannot do without assistance. The effective teacher also provides assistance to learners that helps them gradually internalize their mastery of a

task so that they can do it on their own. Tharp and Gallimore distinguish 6 strategies that good teachers commonly use. They include:

modeling: offering behavior for imitation

contingent management: arranging rewards or punishments depending upon whether behavior is desired

feeding back: providing information on the suitability of behavior relative to a performance standard

instructing: telling of information relevant to accomplishing a task

questioning: asking for information activating more competent task behavior

cognitive structuring: providing explanatory and belief structures that organize and justify

We have found Tharp and Gallimore's 6 categories of teaching strategies to be useful in characterizing how students attempt to help each other in dyadic interchanges, despite the fact that there is often no clear sense of a more capable other.

We also see connections between Tharp and Gallimore's teaching strategies and ways that students ask for help. We find e.g., that students use questioning to ask for help and that question forms can involve asking another student about such things as the correctness or appropriateness of pronunciation of words from a text, about interpretations of text, or about possible answers to treasure hunt questions. Indirect and direct questions as speech acts act as a kind of glue to hold interaction together and they can also show ways in which learners are internalizing the advice of a teacher or

partner in learning. More specifically question forms can be used by a learner to ask for feedback, praise, information, appropriateness of attempts to model behavior, structure ideas, and even to even ask about the suitability of a question itself.

Another portion of the glue holding interaction together in dyadic question answering sessions in CIRC can be though of in terms of a cognitive script that is carried out and negotiated by the participants. The initiating conditions of the script are signaled by the presence of an unanswered question and the goal of each student to develop and write down an answer. Interaction is constructed by the dyad towards this end and involves a mutual reciprocation of assistance. In effect, students alternate between the roles of a tutor questioning and a tutee answering questions as they probe each other on information relevant to answering a treasure hunt question.

In addition to use of questioning strategies to ask for help, we also find that students elicit additional metacognitive strategies from each other as they go about their work. For example, we have found students to advise each other about the importance of checking a portion of a text passage in order to verify the correctness of an answer or to actively discuss previous instructional experience and its relevance to answer a question. The latter is evident e.g., when students interrogate each other regarding vocabulary terms in treasure hunt questions that had been previously taught by the teacher.

In general we find 3 central functions occurring in the interaction of students in dyads, with the occasional participation of the teacher. These functions include:

1) Teachers or students giving assistance to a student -- as exemplified by Tharp and Gallimore's 6 means of assistance.

2) Students demonstrating competence, in offering answers to a question or giving solutions to a problem.

3) Students asking for help, in direct question form or else, indirectly, by stating a hypothetical interpretation of text with questioning intonation.

The occurrence of these functions is illustrated in the next section.

A Sample Analysis and Discussion

Two 4th grade bilingual students, (fictionally referred to here as) Lupe and Juan, were asked to read the first half of the story shown in Figure 1. Subsequently they answered the Treasure Hunt questions shown in Figure 2. The first question students were asked was: Why does Mama ridicule the whole idea of the hike? In answering this question Lupe and Juan engaged in an active discussion that shows thinking and reasoning in ways not well reflected by their ultimate written answers. Lupe's written answer was:

Mama ridicule because she things that there going to eat his son.

Juan's written answer was:

She think. That something is going do his son

Figure 3 presents a transcript of Lupe's and Juan's discussion of question 1 accompanied by intervening comments from Mr. S., the teacher. Mr. S. is an active participant and assistor in the early part of the discussion, but then backs off to assist other students.

Question 1 is a fairly high level question, requiring inferences about the beliefs, values, and motives of Mama and how she manipulates her opposition to the hike indirectly. An appropriate answer might be something like: Mama is afraid that the children would get lost or hurt. The term "ridiculous" is critical to understanding the question and the initial interactions between the students and Mr. S. [lines 1 to 13] involve Mr. S.'s use of modeling and questioning. This is accompanied by students' use of direct and indirect questioning to request help in generating the appropriate responses.

Figure 3 also includes a coding of interactional strategies involving the offering of assistance, the demonstration of competence, and requests for assistance. Consistent with the discussion presented earlier, the discussion of Figure 3 suggests that students actively alternate between the roles of a tutor and tutee.

The discussion in Figure 3 is centered on answering the target question and shows noticeable cohesion among the conversational turns, though the students show difficulty in recognizing the higher order rational underlying a good answer to the target question until the end of the discussion. Most of the discourse among the students following the initial discussion of the meaning of "ridiculous" is expended in probing and confirming specific hypothetical consequences alleged to follow the occurrence of a hike in the city.

The example discussion which has been presented shows that students may be engaging in extensive interaction during dyad question answering, but that

students might nonetheless need additional guidance in understanding the characteristics of a good answer to a question.

Apart from this important limitation, the students observed show good knowledge of conversational skills appropriate to tutoring each other. They show a willingness to to challenge or evaluate each others' responses. Most of the exhibitions of testing a hypothesis or asking for help in question form shown in Figure 3 involved use of prosodic cues such as questioning intonation and hesitations to signal uncertainty on the part of the interlocuter. In order for the interaction to continue and develop the topic at hand each student had to be sensitive to these cues and their significance for continuing the interaction.

In closing, the participation structure shown in Figure 3 is suggestive of a shared or democratic view of learning where there is not necessarily a clear expert (except for the teacher) and where students are able to probe each others' understanding. The characteristics of the discourse are reminiscent of cognitive and social strategies followed by children in small group settings participating in the early implementation of the Kanehermeha Early Education Program. Jordan (1980) summarized these strategies as follows:

a) seeking and giving immediate feedback about small segments of performance
b) scanning for and utilizing multiple sources of help and information
c) scanning for evidence that other children need help and information
d) volunteering to help others
e) switching between learner and teacher roles

f) use of modeling and intervention as major teaching/learning devices

g) joint work on tasks

We believe that an interpretation of behaviors such as the foregoing in the analysis of cooperative learning activities could be very helpful in extending our understanding of how cooperative learning actually works at the level of student interaction.

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Figure 1

A Hike in New York City

by Sam Levenson

At least once each summer we kids went off on a hike, but never without strong opposition from Mama. When it came to the open road, Mama had a closed mind.

Her method of discouraging us from venturing into the unknown was to make the entire project appear ridiculous:

"You're going on a what?"

"We're going on a hike."

"What's a hike?" Mama would ask.

When we started to explain it, the whole idea did in fact become ridiculous.

"We're going walking, Ma."

"Walking? For that you have to leave home? What's the matter with walking right here? You walk; I'll watch."

"You don't understand, Ma. We take lunch along."

"I'll give you lunch here, and you can march right around the table," and she would start singing a march, clapping her hands rhythmically."

"Ma, we climb mountains in the woods."

She couldn't understand why it was so much more enjoyable to fall off a mountain than off a fire escape.

"And how about the wild animals in the woods?

"Wild animals? What kinds of wild animals?"

"A bear for instance. A bear could eat you up."

"Ma. Bears don't eat little children."

"Okay. So he won't eat you, but he could take a bite and spit out! I'm telling you now, if a wild animal eats you up don't come running to me. And who's going with you?"

"Well, there's Georgie--"

"Georgie! Not him! He's a real wild animal!" She then went on to list all the conditions for the trip. "And remember one thing, don't tear your pants, and remember one thing, don't eat wild berries and bring me home the cramps, and remember one thing, don't tell me tomorrow morning that you're too tired to go to school, and remember one thing, wear boots, a sweater, and an umbrella, and a hat, and remember one thing, if you should get lost in the jungle, call up so I'll know you're all right. And don't dare come home without color in your cheeks. I wish I were young and free like you. Take soap."

Since the consent was specifically granted for the next day only, that night none of us slept. There was always a chance that it might rain. Brother Albert stayed at the crystal set all night like a ship's radio operator with his earphones on, listening to weather bulletins and repeating them aloud for the rest of us. "It's clearing in Nebraska. Hot air masses coming up from the Gulf. They say it's good for planting alfalfa. Storm warning off the coast of Newfoundland. It's drizzling in Montreal"

[End of first half]

At six A.M. we were ready for Operation Hike, rain or shine, but we had to wait for Papa to get up. We didn't need his permission, but we did need his blanket.

Into the valley of Central Park marched the six hundred, bowed down with knapsacks, flashlights, a cereal box compass-mirror (so you could tell not only where you were lost but who was lost), a thermos bottle (semiautomatic - you had to fill it but it emptied by itself), and an ax. Onward! Forward! Upward! Philip was always the leader. He was the one to get lost first! Jerry was the lookout. He would yell, "Look out!" and fall off the cliff. None of us knew how long we were supposed to march. We went on because we didn't know what to do if we stopped. One brave coward finally spoke up. "I can't go on anymore. The heat is killing me. Let's start the fire here."

No hike was complete without Georgie and his Uncle Bernie's World War I bugle. This kid had lungs like a vacuum cleaner. With him outside the walls of Jericho, they could have sent the rest of the army home. He used to stand on a hill and let go a blast that had the Staten Island ferries running into each other.

Lunch, naturally, had been packed in a shoe box -- sandwiches, fruit, cheese, and napkins all squashed together neatly. The lid would open by itself every twenty minutes for air.

It happened every time -- the Miracle of the Sandwiches. One kid always got a "brilliant idea." "Hey. I got a brilliant idea. I'm tired of my mother's sandwiches. Let's everybody trade sandwiches." All the kids exchanged sandwiches, and miraculously we all ended up with salami.

Albert was the true nature lover. "You know, you can learn a lot about human nature from the ants," he always said as he lifted up rick after rock to study his favorite insects. And he was right. While he was studying the ants, someone swiped his apple.

We came home with color in our cheeks -- green. To make sure we could go again, we didn't forget Mama. We brought her a bouquet. She took one whiff and broke out in red blotches. Papa yelled but wouldn't come near us. He was afraid it was catching.

Figure 2

"A Hike in New York City",
Find Your Way, pp. 126-132

WORD MASTERY LIST

*opposition	*consent	salami
*rhythmically	*specifically	
*conditions	ferries	

TREASURE HUNT

Section I. Stop at the end of p. 129. Discuss the answers to the questions with your partner. Then write your answers, while your partner answers separately.

1. Why does Mama ridicule the whole idea of the hike?

2. Name two of the conditions Mama sets for the hike.

3. Why does Albert listen to the radio the night before?

4. Which wild animal is Mama worried about?

5. What kind of mistake in reasoning is Mama making about the hike?

MAKE A PREDICTION:

Will the children go on the hike, or not?

Figure 3

Discussion between Juan (J) and Lupe (L)

1. L: Now there.
2. J: Okay, number one.
3. L: Okay, why does Mama ridiculi- (pronunciation problem) the whole idea of the hike? Why does Mama ridiculis- the whole idea of the hike? **[Questioning]**
4. J: Hmm, rididi- **[Demonstration of competence]**
5. Mr. S.: Ridicule **[Modeling]**
6. L: Ridicule. **[Demonstration of competence]**
7. J: What's that? **[Asking for help]**
8. Mr. S.: Remember your vocabulary word that we had yesterday? **[Questioning]**
9. L: Ridiculous? **[Testing a hypothesis in question form]**
10. Mr. S.: Uh-huh. **[Feedback]** So what does she made, doing with the hike? **[Questioning]**
11. L: She makes ridiculous? **[Testing a hypothesis in question form]**
12. J: She thought that the wild animals, that the bear would eat you up. **[Demonstration of competence]**
13. Mr. S: Now remember, what's this 'why does Mama'? **[Questioning]**
14. L: Because she's always thinking that they're gonna eat her. That they are going to eat her son and that he's going to eat something that he shouldn't eat. **[Demonstration of competence]**
15. J: But, but their son, the his son- his son will- his son wanted to go too? **[Questioning]**

16. L: The son? [Testing a hypothesis in question form]

17. J: Yes. [Feedback]

18. L: Yes? He wanted to go? [Testing a hypothesis in question form]

19. J: And Mama was afraid of the, they could be lost in the jungle? [Questioning]

20. L: Yes. [Demonstrating competence]

21. J: And would they think that- would they think that- that- Did she think of this idea of the hike? [Questioning]

22. L: The idea of the hike? [Asking for help?]

23. J: Yes, did she think of this idea of the hike? [Feedback, Questioning]

24. L: No. [Demonstrating competence]

25. J: Who thought of this idea? [Questioning]

26. L: Um, her little boy. [Demonstration of competence]

[A break occurs in the discussion of question 1 as the students go on to explore remaining questions 2-6. Students then return to question 1 in order to write their answers.]

27. J: (reading) Why does Mama ridi-

28. L: I don't understand that. [Asking for help]

29. J: Why? [Questioning]

30. L: Because she's always- she's always thinking wrong or that something's gonna happen to her... [Demonstrating competence]

31. J: her son. [Demonstrating competence]

32. L: son. [Demonstrating competence]